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US EPA
WESTERN PA SECTION
3HW23

Engineering Division
Hazardous, Toxic, and
Radioactive Waste Branch

Frank Vavra
US EPA, Region III
Hazardous Waste Management Division
841 Chestnut Building (3HW23)
Philadelphia, PA 19107

Dear Mr. Vavra:

Reference Interagency Agreement (IAG) #DW96943578-01-0 dated September 27, 1991 for Technical Assistance Enforcement Support at Osborne Landfill Superfund Site, Pine Township, PA. In accordance with this IAG, the Corps of Engineers observed the drilling, installation and sampling of monitoring wells and observation wells at the site from December 7, 1992, to January 8, 1993. Attached is a summary of our observations while at the site. The results of the QA testing were transmitted in a letter dated February 3, 1993. If you have questions or wish to discuss this document further, please contact me at (410) 962-2702.

Sincerely,



Gary D. Poling
Project Manager

AR306615

23 January 1993
Mr. Powers/clj/24044

MEMORANDUM FOR RECORD

SUBJECT: General Oversight and Quality Assurance Sampling of Wells at Osborne Landfill Superfund Site, Grove City, PA

1. PURPOSE:

a. A Corps of Engineers representative, Jefferey Powers, observed the drilling, installation and sampling of monitoring wells and observation wells located adjacent to the Osborne Landfill in Grove City, PA, from 7 to 22 December 1992 and from 5 to 8 January 1993.

b. The Corps representative collected four random monitoring well water samples in addition to the samples taken by Civil & Environmental Consultants, Inc. (CEC). The four samples were sent to a quality assurance laboratory (EA Laboratories, 19 Loveton Circle, Sparks, MD 21152, 410-771-4920) to insure the integrity of the samples taken by CEC. The goal of the well testing was to better define the extent of ground water contamination.

c. Civil & Environmental Consultants, Inc. (790 Holiday Drive, Pittsburgh, PA 15220, 412-921-3402) is the company in charge of the Osborne remediation project for Cooper Industries, Inc. Lawrence Drane was the principal on-site representative for CEC. Terra Testing, Inc. (265 Meadowlands Boulevard, Washington, PA 15301, 412-746-9100) was the contracted drilling company responsible for the drilling and installation of the wells. Representing TTI were Ken Zombek and Joe Schneider.

2. FIELD OBSERVATIONS:

a. Depths to bedrock and total hole depths were checked and verified by the undersigned during the initial drilling and sampling of the overburden and bedrock in which the new wells were placed. Soil samples were collected at 5 foot intervals. Continuous rock core was collected using a 10 foot core barrel.

b. A total of 12 wells were installed. These wells consisted of one pumping well (PW1), eight observation wells (OW1S, OW1D, OW2S, OW2D, OW3S, OW3D, OW5S, OW5D) and three ground water monitoring wells (MW7, MW8, MW9). The "S" in the identification notation refers to the well being shallow and the screen being set in the upper portion of the Clarion Sandstone aquifer. The "D" indicates a deep-set well.

c. A pump test was to be performed on PW1 and its eight associated observation wells to calculate aquifer properties of the Clarion. Approximate observation well distances from the pumping well were verified and are as follows: 10 feet for OW1S&D, 10 feet for OW3S&D, 15 feet for OW2S&D, and 20 feet for OW5S&D.

d. The total depths of all newly installed wells were measured by CEC in the presence of the undersigned and verified to be accurate. Initial water levels in the pumping well and eight observation wells were verified in the same manner.

e. Borings for wells were augered to the rock and were then cored using an NX size core barrel to the proper depth. Once sample was obtained, the hole was reamed to bedrock using a larger auger and advanced to the proper depth through rock using a tricone rollerbit. Water obtained from a nearby creek was used as a drilling fluid. A 4-inch rollerbit was used for the observation wells (producing a boring with an approximate 6-inch diameter) and a six inch rollerbit was used for the monitoring wells (producing an 8-inch diameter boring).

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CENAB-EN-GGE

SUBJECT: General Oversight and Quality Assurance Sampling of Wells at Osborne Landfill Superfund Site, Grove City, PA

f. The new monitoring wells and the pumping well were constructed of 4-inch diameter PVC with 5-foot long slotted screens. The new observation wells were constructed of 2-inch diameter PVC, also with 5 foot slotted screens. The filter pack material surrounding the screens, for all the wells installed, was Best brand coarse silica sand (approximate 1/8 inch diameter). A Baroid brand 3/8-inch bentonite pellet plug was added above the filter pack to make the impermeable seal followed by a cement grout mixture of approximately 94 pounds Kosmos brand Portland Cement to 5 pounds granular bentonite with 6 to 8 gallons of water. The cement grout was placed to the top of ground. A 6-inch metal casing protector was installed around each well, each with its own locking cap, and with an approximate 2-foot stick-up. For visibility, a wooden four-by-four post was placed beside each well.

g. The 12 newly installed wells were developed the week of 28 December 1992 to 1 January 1993. The Corps representative was not on site at that time.

h. CEC sampled 24 wells to the northeast, east, and southeast of the Osborne Landfill. All of those wells are generally considered to be hydraulically down gradient from the landfill. Nineteen of those wells sampled were done so in the presence of the Corps representative and were purged, tested, and sampled in a thorough manner. Wells were purged using properly decontaminated bailers. Sampling of wells was performed using dedicated bailers. Fifteen monitoring wells, including six screened within the mine void and the three newly installed wells, were sampled for low level Volatile Organic Compounds (VOCs). The eight observation wells and pumping wells were tested for parameters other than Volatile Organic Compounds, including a heavy metals analysis.

i. The Corps representative obtained four quality assurance (QA) replicate samples from four different monitoring wells to be analyzed for the same parameters as the samples obtained by CEC for the respective wells. Wells chosen for the duplicates were randomly selected; however, an attempt was made to evenly space the quality assurance replicates. The replicate samples were taken from the following wells: MWC3, MW7, MWV4 and MWV3.

j. There were three small amber vials per one Corps QA sample, each of which contained a small amount of HCL preservative. There were two small clear vials per one CEC sample, which contained no preservative. The Corps representative delivered a secured, iced cooler containing the four QA samples plus one trip blank to EA Laboratories, Sparks, MD, on 8 January 1993. A copy of the chain of custody form which accompanied the cooler is enclosed.

k. The project Health & Safety Plan was followed when personnel were working within the fenced area of the landfill. For the one boring drilled (tentatively named boring 8A at the time of drilling) within the fenced site, an exclusion zone was created and Level D protective clothing was worn.

l. An exclusion zone was not set up for work outside the fenced site and Level D clothing was not worn in these areas. According to CEC, this was because the work was performed outside the fenced site and was considered to pose a minimal health hazard. A crude exclusion zone was set up on some borings around the pump test area due to its close proximity to the road to prevent public access.

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3. CONCLUSION AND COMMENTS:

a. Work was determined to be of good quality by CEC and Terra Testing. Although work ran behind schedule, it was performed in a careful and accurate manner, consistent with the quality of work performed in April 1992 by both parties. Depths of top of rock, total well depths, and well water levels were determined to be accurate when checked by the Corps of Engineers.

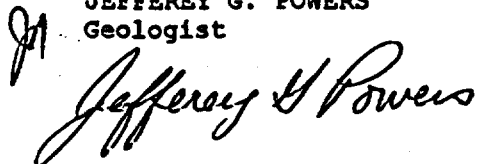
b. The sampling procedure including parameter testing prior to sample collection by CEC was very thorough. All parameters specified by the work plan were tested for and recorded by CEC. Samples obtained by CEC and the Corps of Engineers for the same monitoring well were collected from the same bailer of water, therefore, the respective laboratories have true replicate samples.

c. The Site Health and Safety Plan was followed during work within the fenced Osborne site. It may have been true that a minimal risk of exposure to hazardous materials existed for work outside the fenced area; however, it is the opinion of the Corps representative that Tyvex coveralls should have been worn to prevent soil and water from contacting worker's clothes to further assure their safety.

d. It is the opinion of the Corps of Engineers observer that the wells were installed correctly, developed adequately so that the water extracted during purging was clear to the unaided eye, and samples were collected and stored in iced coolers properly so as to insure the quality of data obtained for future Osborne Landfill site evaluation.

Encl

JEFFEREY G. POWERS
Geologist



AR306618

23 January 1993

DAILY NOTES
OSBORNE LANDFILL SUPERFUND SITE

7 December 1992

U.S. Army Corps of Engineers/EPA representative Jefferey Powers, arrive on site, met w/ Civil and Environmental Consultants (CEC) rep. Lawrence A. Drane, Hydrogeologist

AR306620

8 December 1992

0800 On site, Terra Testing, Inc. (TTI) (Contracted drill crew) on site

0810 CEC on site
Begin filling water truck from creek approx. 1 mi east on E. Pine St. extension

Site Conditions: 25/35 degrees F., cold, approx. 3 in. snow cover, lt. snow

0845 Water tank full

TTI crew members: Ken Zombek, Driller
Joe Schneider, Helper

All site personnel (L. Drane, K. Zombek, J. Schneider, J. Powers) have signed Health and Safety Plan (HASP)

OW-5S

Now installing shallow observation well OW-5S for pump test
Auger to top of rock, approx. 12 ft. Rock at refusal is siltstone
Rollerbit to top portion of Clarion Sandstone
Installation of OW-5S will mark completion of pump well and its 8 associated observation wells (4 shallow, 4 deep)

Work remaining before MW sampling: OW-5S

MW-7, MW-8, MW-9

MW development

1 boring w/in landfill area

Ground water reported to be approx. 26 ft.

Exclusion zone set up
All level D personal protective equipment (PPE) worn except Tyvex coveralls

0930 Begin rollerbit through rock
Air rotary drilling

1150 Bottom of hole (BOH) =36.5 ft., 6 in. diam. borehole
2 in. diam PVC well to be installed to 36.0 ft.
5 ft. slotted screen 31.0-36.0 ft.
coarse sand/pea gravel (Best brand) silica filter pack around screen 36.0-28.0 ft.
3/8 in. bentonite pellets 28.0-25.8 ft., placed in saturated environment, hydration time approx. 30 min.

Occasional air monitoring
Air monitoring equipment used: Microtip (VOCs)
Combustible gas meter

Bail OW to clean well and screen

23 January 1993

Drill cuttings are being drummed and separated by hole,
drums are relocated to inside of secure front gate

Example of labeling: OW-5S
Osborne Landfill
CEC 91187
Cuttings

Label is written on top of drums in black permanent marker

Bail water drummed, approx. 50 gal.

Test bail water w/ pH paper

Water level inside augers drops as water inside well is
bailed. Indicates interconnection/unsealed well

More bentonite added, appears rock may be fractured locally
It was reported that this problem did not occur on other OWs
or pump well

Based on test boring in immediate vicinity of pump well and
OWs, approx. 4 ft. mined coal seam/void or filled void
exists at approx. 52-56 ft.

1640

Leave site

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9 December 1992

0800 On site, CEC & Terra already on site.

Site conditions: 28/38 snow cover, cold, and sunny

0800-0840 Fill water tank from nearby creek same crew on site
Was decided to bring bent to top of rock to limit water loss/migration downward
Bentonite pellets 28-11'
Grouted 11' to 0 (Ground surface)
Protector pipe (6" diam. round) installed

0940 OW-5S completed

0950 Relocate rig (CME truck mounted) and set up on MV9 in center of corn field to North of pump test area

1005 Begin sampling MW9 @ 5' intervals
Microtip used for VOC screening
No exclusion zone set up
Proper PPE worn except Tyvex

Top rock=11.7', rollerbit to 12.0
Drummed soil & rock cuttings
NX core 12.0
Limestone 11.7-17
Clay/Claystone 17-20
Limestone 20-29.4

1520 Stop drilling for day @ 29.4'

1540 Leave Site
MW9 Approx. 650' N. of PP Test Area

10 December 1992

0800 On site, Terra & CEC on Site

0800-0850 Fill water tank

Site Conditions: 30 degrees, snowing, windy, cold, slippery

0910 Old core barrel inoperable, new core barrel is painted-
CEC rep on site directed Terra that paint must be removed
and barrel properly deconned before its use for envir.
purposes

1145 Stop on site work for day
Clean core barrel @ Terra's office

1200 Leave site

14 December 1992

- 1400 Powers- On Site
Crew has just completed rock core of MW9 to 60.0'; 30-60 is
interbeds of shale & S.S.,
Ending in SS, mine void is reported to be ~65' @ this
location
Crew did not work Friday 12/11 due to snow storm
- 1445 Auger thru overburden to set 8" casing

Tyvex not being used for work outside fenced landfill due to
minimal risk of HAZ material being encountered

Exclusion zone & decon staging area not being designated due
to remoteness of MW from public access (MW9 approx. 800'
from E. Pine St.)
- 1600 8" casing set @ ~17' large rollerbit 17' to 60' (begin
morning) to make 8" hole
- 1610 Leave site

15 December 1992

0800 On site; Terra on site

0810 CEC on site

0830 Begin rollerbit thru rock @ approx. 17'
Site Conditions: 30/45 degrees, Partly sunny~5" snow cover

1500 Finish rollerbit @ 61.1
 2 Drums drill cuttings
 5' Screen (4" ID PVC slotted)

1600 Screen set @ 59.5' (59.5-54.5)
 "Best" brand coarse silica sand to 53.0'
 2.5' stick-up above top ground - 4" PVC casing
 Bentonite (3/8" pellets) to 50.0' (50-53)

1645 Leave site

 Diagram on observation well/pump well

16 December 1992

0800 On site; Terra on site
Fill water tank from creek
Site conditions: 35/45 degrees, wet, muddy 2" snow cover
Water truck & Terra pickup
Stuck in mud in cornfield-pull out w/tracked rig

1030 Grout 50-0'
Bailed ~20 gal MW9 & placed in separate/labeled drum

1200 Pull casing

1215 Place 6" round metal protector over PVC casing, locked

1250 7' Wooden Marker post placed for well visibility
Installation of MW9 complete

1300 Clean & move equipment

1330 Relocate to MW7, approx. 350' S.S.E. of PP Test area
Move 3 drums from MW9 to drum area w/in Osborne site fence
Set up on MW7

1600 Leave site

17 December 1992

0800 Arrive on site, Terra & CEC on site
Site Conditions: 45 degrees, rain sample overburden @ MW7 to 16.5'
(weathered/saprolitic rock ~10-16 S')
NX core 16.5-26.5/Siltstone 10-20.7/Sandstone 20.7-27

1200 8" casing set at ~14.5

1240 Begin rollerbit for 8" hole

1310 Fill water truck from creek

1545 B.O. 8" Hole 27.5'

1605 Install well
5'4" diam PVC slotted screen
4" PVC riser/casing
Coarse sand 27'-19.8'
3/8" bentonite pellets 19.8-17'

1645 2 1/2 stick-up on PVC riser

1700 Leave site

18 December 1992

0800 On site, Terra & CEC on site
Site conditions: 32/37 degrees, p. cloudy, muddy

0810 Fill water truck @ creek

0850 Grout hole to surface

0950 Remove 8" casing cement grout composed of:
Gallon water ~6-8 gall
1 bag (94#) Kosmos brand portland cement
~1/10 bag (50#) Baroid brand benseal/granular bentonite

* Note: Filter pack sand is actually sm. gravel size - "pea" gravel
~1/8" diam

1030 Wooden marker post placed ~8' high
Installation of MW7 complete

1040 Clean equipment. Relocate to MW8

MW8 located ~15' from overhead power line

1220 Begin sampling overburden
Air monitoring - Photovac Microtip
Terra workers' clothing/equipment
rain suit
hard-hat
inner & outer gloves
rubber over-boots

1310 Overburden 0-15.9'

Begin NX coring @ 15.9'
Rollerbit to clean out hole
10' NX core barrel
Run #1 - 15.9-24.7
Run #2 - 24.7-34.7 Shale sandstone
Run #3 - 34.7-43.0

Total Core 15.9-43.0 (27.1')

Approx. depth of mine void = 45' @ MW8 (based on 2 prev.
borings)

1515 Finish rock coring

1530 Leave site

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21 December 1992

0800 On site, Terra & CEC on site
Fill water truck from creek
Site conditions: 22/35 degrees, cold

0840 Prepare to drill

0910 Use Alconex wash & steam clean
Drill rods & 8" casing to clean spilled kerosene from
equipment before placing downhole

1010 Drive 8" casing to ~16.0'

1100 Begin 6" rollerbit @ 16' to make 8" diam hole for well
Drill cuttings placed in 55gal drums
1 drum drill cuttings - moved to drum area

1350 Drilling completed, remove rods from hole (rollerbit 16-
40.7')
B.O.Boring = 40.7

1400 Bentonite 40.7-38.2 to plug shale @ bottom for well to be in
S.S.
Well specs:
4" ID PVC
5' Screen slotted
Screen 38.0-33.0'
Best silica sand (sm "pea" gravel) 38.2-31.0'

1430 3/8 Bentonite pellets 31.0-29.0' (1 hr hydration time)
Grouting

1500 Use tremie pipe & grout pump 29.0-0.0
Aprox. 2 1/2 stick-up on PVC riser
Same mixture as prev.

1540 Pull 8" casing

1600 Place 6" rnd metal protector pipe
Leave site

Installation of MW8 complete.

22 December 1992

0800 On site

0815 CEC on site

0830 Terra on site
Site conditions: 35/40 degrees, fair
Work plan for day is to install wood posts beside MW8 & pre-existing wells
Also to set up on "hot spot" soil boring w/in fenced site

Mr. Drane plans to take environ. soil samples and/or rock samples/void samples & implement stricter PPE control (Tyvex) on Wed 12/23
As of 12/22, proper monitoring equipment not on site

0900 Paint/stencil well #s on posts

0920 Fill water truck from creek

1000 Place wood marker post MW8
Place wood marker post MWV6
Place wood marker post MWV5

Place sand between metal protector & casing on MW7
Place wood marker post beside two unmarked, old wells at bend in E. Pine St. near site

Place wood marker post in cluster of PW-1 & observation well next to PW-1
Place marker posts for MWV3, MWV4/MWC4, MWV1/MWC2
Place sand between protector and riser pipe

1410 Finish post installation
Relocate rig & equipment to location of single boring - (Contam. is in clay of mine void ~70')

1430 Set up on "8-additional" (no official name give to this hole, I've designated "8-add.")

Mr. Drane plans to bore to depth same as original 8-A, use OVA & Microtip to find zone of contam., take air and residual soil samples

No tyvex to auger overburden 12/22

Contam @ 77.1 - will be B.O.H. (based on prev. boring 8A)

Auger to top of rock 0-39'

1505 Set up to being core on 12/23

1530 Leave site
Car phone- Sharon
491-4227 L. Drane

6 January 1993

Week of 12/28-1/1 developed 3 new wells
Development water placed in med. size pond w/in fenced site

SAMPLING

0750 On site
Bill Weir (CEC) on site
0830 Larry Drane (CEC) on site
Site conditions: 32//40 degrees, fair, cloudy

Testing MW water for low level VOCs

Mon. wells to be sampled and tested for VOCs: MWC1, MWC2, MWC3, MWC4, CMW1, CPW1, MWV1, MWV2, MWV3, MWV4, MWV5, MWV6, MW7, MW8, MW9

Other wells will be sampled for other parameters as specified in QAPP (including new observation wells)

0905 Kevin Wolf (CEC) on site, Brian R. (CEC) on site

Purge water will be initially placed in drums and then discharged into med. size pond w/in fenced site

All new OWs and new PW water levels are approx 0.5 ft. above levels taken 12/15 (prob. due to recent precipitation)

MWC3 44.88 well depth to top of casing (TOC)

Using bailer for purging/ decon before moving to next well
Disposable/dedicated bailers for sampling
Bail 3 well volumes or until dry well before sampling

PPE during purging consists of rubber boots, coveralls, inner and outer gloves, and tyvex for some samplers

1000 Begin purging OWs

Decon procedure is wash with detergent, scrub with brush, and rinse w/ distilled water.
OWs are being analyzed for: SO₄, Cl, TDS, Ca, Mg, Na, K, Mn, Fe, Br, pH, specific conductance, titration for alkalinity

1315 Begin slug testing (8 OWs and 1 PW)
Slug test is drawdown/recovery type

1400 3 men from Cooper Industries on site

1530 CORPS SAMPLE:
Samp. # MWC3-R
1/6/93
Low level VOC grab sample
3 vials=1 replicate QA

1550 CORPS SAMPLE:
Samp. # TB-1 (Trip Blank)
Trip blank placed in cooler

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1615 Purge MWV5-approx. 3 well volumes
Purge MW8-approx 1 w.v. (purging not completed)
1705 Sample MWV5 (no QA repl.)
1720 Leave site

7 January 1993

0800 On site
0810 CEC on site
0820 Begin purging MW8 again

Site conditions: 27/37 degrees, p. cloudy

MW7 water level 11.65 to TOC, approx. 9.5 ft below TO ground

0945 Begin purging MW7

1030 CORPS SAMPLE:
Samp. # MW7-R
1/7/93
Low level VOC grab sample
3 vials=1 QA repl.

VOC sample vials of CEC do not contain (HCL) preservative,
Corps sample vials do

1100 Begin purging MWV6

1140 MWV4- BO well approx. 84 ft.
BO well MWC4 approx. 32 ft.
Begin purging MWV4, MWC4
Sample MWV6 (CEC)

1300 Begin development/pruging MW-9 (this is only well not to be
developed, will dev. and purge simultaneously)

1345 Sample MWV4 and MWC4

CORPS SAMPLE:
Samp. # MWV4-R
1/7/93
Low level VOC grab sample
3 vials=1 QA repl.

Purge MWV3, MWV1, MWC2
Sample MWC2, MWV1 (CEC)

1730 CORPS SAMPLE:
Samp. # MWV3-R
1/7/93
Low level VOC grab sample
3 vials=1 QA repl.

1745 Leave site

8 January 1993

0645 Leave Mercer, PA to deliver samples to lab, return to
 Baltimore

1230 Deliver 4 QA samples (plus 1 trip blank) to:
 EA Laboratory, Sparks, MD
 Cooler w/ samples relinquished by J. Powers to Ben Landis
 Oversight and QA sampling complete